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1	US 20050068945 A1	20050331	33	Hybrid fiber twisted pair local loop network service architecture	370/352		Gerszberg, Irwin et al.
2	US 20050002440 A1	20050106	147	Vertical adaptive antenna array for a discrete multitone spread spectrum communications system	375/141		Alamouti, Siavash et al.
3	US 20040120409 A1	20040624	22	Impulse response shortening and symbol synchronization in OFDM communication systems	375/260	375/231; 375/350	Yasotharan, Ambighairajah et al.
4	US 20040100897 A1	20040527	25	Carrier interferometry coding with applications to cellular and local area networks	370/206		Shattil, Steve J.
5	US 20040096008 A1	20040520	13	Multi-tap frequency domain equalization with decision feedback and trellis decoding	375/265	375/350	Angel, Guillermo Del et al.
6	US 20040095907 A1	20040520	98	Method and apparatus for optimization of wireless multipoint electromagnetic communication networks	370/334	370/400	Agee, Brian G. et al.
7	US 20040052361 A1	20040318	12	System and method for subliminal time domain duplexing	379/399.01	370/503; 375/262	Betts, William L. et al.
8	US 20030231700 A1	20031218	148	Vertical adaptive antenna array for a discrete multitone spread spectrum communications system	375/144		Alamouti, Siavash et al.
9	US 20030156570 A1	20030821	39	Method for frequency division duplex communications	370/347	370/208	Alamouti, Siavash et al.
10	US 20030142664 A1	20030731	45	Network server platform (NSP) for a hybrid coaxial/twisted pair local loop network service architecture	370/354		Gerszberg, Irwin et al.
11	US 20030123384 A1	20030703	49	Stacked-carrier discrete multiple tone communication technology and combinations with code nulling, interference cancellation, retrodirective communication and adaptive antenna arrays	370/208	370/342	Agee, Brian G.
12	US 20030112758 A1	20030619	57	Methods and systems for managing variable delays in packet transmission	370/235	370/229	Pang, Jon Laurent et al.

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13	US 20030067972 A1	20030410	8	Method and apparatus for transmission line equalization	375/222	375/229	Peeters, Miguel
14	US 20030026346 A1	20030206	41	Communication apparatus and communication method	375/262	714/786	Matsumoto, Wataru et al.
15	US 20030026263 A1	20030206	16	Multi-tone transmission	370/395.1	370/410	Taunton, Mark
16	US 20020181404 A1	20021205	41	Methods and systems for high speed broadband digital link	370/241	370/252	Insler, Jules et al.
17	US 20020159506 A1	20021031	148	Vertical adaptive antenna array for a discrete multitone spread spectrum communications system	375/147		Alamouti, Siavash et al.
18	US 20020122465 A1	20020905	179	Highly bandwidth-efficient communications	375/141		Agee, Brian G. et al.
19	US 20020094049 A1	20020718	11	Frame synchronization in multicarrier transmission systems	375/365		Aslanis, James T. et al.
20	US 20020039359 A1	20020404	33	Hybrid fiber twisted pair local loop network service architecture	370/354	370/420; 370/463; 370/487	Gerszberg, Irwin et al.
21	US 20020009125 A1	20020124	15	High bandwidth efficient spread spectrum modulation using chirp waveform	375/139		Shi, Zhen Liang
22	US 20010024454 A1	20010927	32	Resynchronous control apparatus of subscriber communication machine, and resynchronizing method	370/503	370/282	Hasegawa, Kazutomo et al.
23	US 6853637 B1	20050208	14	Converged home gateway	370/352	370/401; 370/465	Norrell; Andrew L. et al.

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24	US 6853629 B2	20050208	34	Method for frequency division duplex communications	370/330	370/203; 370/206; 370/281; 370/321; 370/329; 370/336; 370/337; 370/343; 370/344; 375/267; 375/299; 375/347	Alamouti; Siavash et al.
25	US 6850533 B2	20050201	43	Network server platform (NSP) for a hybrid coaxial/twisted pair local loop network service architecture	370/401	705/80; 725/46	Gerszberg; Irwin et al.
26	US 6829307 B1	20041207	21	Express bit swapping in a multicarrier transmission system	375/260	375/222; 375/295; 375/358	Hoo; Louise Min Chuin et al.
27	US 6785349 B1	20040831	15	Correlation based method of determining frame boundaries of data frames that are periodically extended	375/343	375/260; 375/354; 455/59	Rosenlof; John R. et al.
28	US 6785300 B2	20040831	13	Delay compensation	370/519	370/206; 370/210; 370/319	Hoole; Elliott

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29	US 6782039 B2	20040824	145	Vertical adaptive antenna array for a discrete multitone spread spectrum communications system	375/147	375/150; 375/347	Alamouti; Siavash et al.
30	US 6751444 B1	20040615	24	Method and apparatus for adaptive carrier allocation and power control in multi-carrier communication systems	455/69	340/7.4; 370/335; 375/225; 455/407; 455/408; 455/440; 455/441; 455/450; 455/456.1; 455/463; 455/63.1	Meiyappan; Palaniappan
31	US 6741185 B2	20040525	22	Digital signal receiver for measurement while drilling system having noise cancellation	340/853.2	175/40; 175/48; 340/854.6; 367/83; 375/232; 375/346; 375/347; 375/350	Shi; Pengyu et al.

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32	US 6735255 B1	20040511	20	Correlation based method of determining frame boundaries of data frames that are periodically extended	375/260	370/506; 370/510; 375/343; 375/360	Smart; Kevin J. et al.
33	US 6714534 B1	20040330	47	Lifeline service for HFCLA network using wireless ISD	370/352	370/401	Gerszberg; Irwin et al.
34	US 6711205 B1	20040323	39	Tone detector for use in a modem	375/222	379/386	Beaney; Jim
35	US 6704317 B1	20040309	18	Multi-carrier LAN modem server	370/401	375/260	Dobson; William Kurt
36	US 6690736 B1	20040210	12	Bit allocation in a transmission system	375/260	375/240	Andre ; Tore
37	US 6674810 B1	20040106	16	Method and apparatus for reducing peak-to-average power ratio in a discrete multi-tone signal	375/296	375/260; 375/285	Cheng; Yaqi
38	US 6643340 B1	20031104	7	Carrier phase derived symbol timing	375/354	375/260; 375/326; 375/371	Strait; Jeffrey C.
39	US 6621851 B1	20030916	180	Priority messaging method for a discrete multitone spread spectrum communications system	375/130	370/242; 375/135	Agee; Brian G. et al.
40	US 6608864 B1	20030819	10	Method and apparatus for fault recovery in a decision feedback equalizer	375/233	375/350	Strait; Jeffrey C.
41	US 6600776 B1	20030729	144	Vertical adaptive antenna array for a discrete multitone spread spectrum communications system	375/147	375/150; 375/349	Alamouti; Siavash et al.
42	US 6584144 B2	20030624	143	Vertical adaptive antenna array for a discrete multitone spread spectrum communications system	375/147	375/150; 375/347	Alamouti; Siavash et al.

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43	US 6560209 B1	20030506	38	Method for frequency division duplex communications	370/330	370/203; 370/206; 370/281; 370/329; 370/336; 370/337	Alamouti; Siavash et al.
44	US 6546056 B1	20030408	15	Timing recovery in a multi-tone modem	375/260	375/364	Rosenlof; John R.
45	US 6546016 B1	20030408	46	Coaxial cable/twisted pair cable telecommunications network architecture	370/401	370/465	Gerszberg; Irwin et al.
46	US 6542500 B1	20030401	45	Network server platform (NSP) for a hybrid coaxial/twisted pair local loop network service architecture	370/354	370/404; 370/419; 370/463; 370/493; 370/537; 370/906; 455/406	Gerszberg; Irwin et al.
47	US 6512737 B1	20030128	48	Stacked carrier discrete multiple tone communication system	370/208	370/335; 370/347	Agee; Brian G.

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48	US 6510152 B1	20030121	46	Coaxial cable/twisted pair fed, integrated residence gateway controlled, set-top box	370/352	370/463; 370/480; 375/222; 725/110; 725/111	Gerszberg; Irwin et al.
49	US 6507585 B1	20030114	17	Multi-carrier LAN adapter device using frequency domain equalizer	370/420	370/401; 375/220; 375/223	Dobson; William Kurt

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50	US 6480748 B1	20021112	46	Facility management platform for a hybrid coaxial/twisted pair local loop network service architecture	700/21	370/282; 370/360; 379/22.03; 379/221.02; 379/221.08; 379/247; 700/19; 700/22; 700/29; 700/292; 700/293; 700/295; 709/217; 709/225; 709/237; 709/238	Gerszberg; Irwin et al.
51	US 6480522 B1	20021112	179	Method of polling second stations for functional quality and maintenance data in a discrete multitone spread spectrum communications system	375/130	370/242; 375/135	Hoole; Elliott et al.
52	US 6452981 B1	20020917	50	Spatio-temporal processing for interference handling	375/299	375/296; 375/347; 375/349	Raleigh; Gregory G. et al.



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53	US 6452923 B1	20020917	58	Cable connected wan interconnectivity services for corporate telecommuters	370/352	370/466; 370/468; 379/114, 21	Gerszberg; Irwin et al.
54	US 6442195 B1	20020827	21	Multiple low speed sigma-delta analog front ends for full implementation of high-speed data link protocol	375/220	375/222; 375/377	Liu; Ming-Kang et al.
55	US 6438186 B1	20020820	7	Carrier phase derived symbol timing	375/354	375/260; 375/326; 375/371	Strait; Jeffrey C.
56	US 6377631 B1	20020423	48	Transmitter incorporating spatio-temporal processing	375/299	375/296	Raleigh; Gregory G.
57	US 6359933 B1	20020319	10	Frame synchronization in multicarrier transmission systems	375/260	370/514; 375/363; 375/368	Aslanis; James T. et al.
58	US 6359923 B1	20020319	244	Highly bandwidth efficient communications	375/130	370/342; 375/135; 375/136	Agee; Brian G. et al.
59	US 6359881 B1	20020319	32	Hybrid fiber twisted pair local loop network service architecture	370/354	370/403; 370/543	Gerszberg; Irwin et al.
60	US 6337877 B1	20020108	15	Method and apparatus for scaling modem transfer capacity in a multi-channel communications system	375/222	375/260	Cole; Terry L. et al.

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61	US 6292515 B1	20010918	24	Dual mode bit and gain loading circuit and process	375/260	370/231; 370/468; 375/225; 375/240	Kao; Chiihsin et al.
62	US 6266367 B1	20010724	10	Combined echo canceller and time domain equalizer	375/229	370/286	Strait; Jeffrey C.
63	US 6222888 B1	20010424	23	Method and circuit for controlling setup of multichannel system	375/260	375/222; 375/225	Kao; Chiihsin et al.
64	US 6208297 B1	20010327	41	Methods and apparatus to position a mobile receiver using downlink signals, part I	342/450	375/350; 455/456; 6	Fattouche; Michel et al.
65	US 6144711 A	20001107	49	Spatio-temporal processing for communication	375/347	375/346; 375/349	Raleigh; Gregory G. et al.
66	US 6144705 A	20001107	15	Technique for simultaneous communications of analog frequency-modulated and digitally modulated signals using precanceling scheme	375/296		Papadopoulos; Haralabos C. et al.
67	US 6128348 A	20001003	25	Method for configuring data and energy parameters in a multi-channel communications system	375/260	370/235; 375/222; 375/295	Kao; Chiihsin et al.
68	US 6128276 A	20001003	53	Stacked-carrier discrete multiple tone communication technology and combinations with code nulling, interference cancellation, retrodirective communication and adaptive antenna arrays	370/208	370/335; 375/347	Agee; Brian G.

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69	US 6122309 A	20000919	27	Method and apparatus for performing interference suppression using modal moment estimates	375/130	375/144; 375/148; 375/346; 375/350	Bergstrom; Chad Scott et al.
70	US 6118805 A	20000912	28	Method and apparatus for performing frequency hopping adaptation	375/132	370/208; 375/134	Bergstrom; Chad Scott et al.
71	US 6094459 A	20000725	26	Circuit for configuring data and energy parameters in a multi-channel communications system	375/295	375/222; 375/225	Kao; Chiihsin et al.
72	US 6084932 A	20000704	19	Method to indicate synchronization lock of a remote station with a base station for a discrete multitone spread spectrum communications system	375/355	375/362	Veintimilla; Gregory J.
73	US 6084917 A	20000704	25	Circuit for configuring and dynamically adapting data and energy parameters in a multi-channel communications system	375/260	375/219; 375/222; 375/225	Kao; Chiihsin et al.
74	US 6084906 A	20000704	24	ADSL transceiver implemented with associated bit and energy loading integrated circuit	375/220	375/222; 375/225; 375/260	Kao; Chiihsin et al.
75	US 6075821 A	20000613	25	Method of configuring and dynamically adapting data and energy parameters in a multi-channel communications system	375/260	375/222; 375/225; 375/295	Kao; Chiihsin et al.
76	US 6055268 A	20000425	75	Multimode digital modem	375/229	375/231	Timm; William C. et al.
77	US 6044107 A	20000328	76	Method for interoperability of a T1E1.4 compliant ADSL modem and a simpler modem	375/222		Gatherer; Alan et al.

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78	US 6038251 A	20000314	75	Direct equalization method	375/222	375/229; 375/231	Chen; Walter Y.
79	US 6035000 A	20000307	18	Mitigating radio frequency interference in multi-carrier transmission systems	375/296	370/525; 375/346; 455/296	Bingham; John A. C.
80	US 6021158 A	20000201	78	Hybrid wireless wire-line network integration and management	375/211	375/220	Schurr; Paul E. et al.
81	US 6002722 A	19991214	75	Multimode digital modem	375/295	375/222; 375/357	Wu; Song
82	US 5999563 A	19991207	59	Rate negotiation for variable-rate digital subscriber line signaling	375/222	370/229; 370/484; 370/494; 375/219	Polley; Michael O. et al.
83	US 5987061 A	19991116	73	Modem initialization process for line code and rate selection in DSL data communication	375/222		Chen; Walter Y.
84	US 5933421 A	19990803	37	Method for frequency division duplex communications	370/330	370/203; 370/281	Alamouti; Siavash et al.
85	US 5914981 A	19990622	19	Method to indicate synchronization lock of a remote station with a base station for a discrete multitone spread spectrum communications system	375/145	375/355; 375/368	Veintimilla; Gregory J.
86	US 5901180 A	19990504	12	Frame synchronization in multicarrier transmission systems	375/261	370/480; 370/515; 375/364; 375/367	Aslanis; James T. et al.

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87	US 5875208 A	19990223	12	Delay compensation in a discrete multitone spread spectrum communications system	375/130	370/280; 370/294; 370/498; 370/500; 370/503; 370/516; 370/517; 370/519; 375/354; 375/358; 375/362	Hoole; Elliott
88	US 5627863 A	19970506	11	Frame synchronization in multicarrier transmission systems	375/357	370/509; 375/362; 375/364; 375/365; 375/368	Aslanis; James T. et al.
89	US 5479447 A	19951226	25	Method and apparatus for adaptive, variable bandwidth, high-speed data transmission of a multicarrier signal over digital subscriber lines	375/260	370/468; 375/377	Chow; Peter S. et al.

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90	US 5109417 A	19920428	50	Low bit rate transform coder, decoder, and encoder/decoder for high-quality audio	704/205	375/240; 704/203; 704/224; 704/229; 704/500; 708/205; 708/495	Fielder; Louis D. et al.
91	US 5005168 A	19910402	66	Multirate wire line modem apparatus	370/276	370/286; 370/294; 370/295; 375/222	Cummiskey; Peter et al.
92	US 4525789 A	19850625	175	Programmable network tester with data formatter	702/117	330/278; 370/249; 714/737	Kemper; Kyran B. et al.
93	US 4501003 A	19850219	174	Dial pulse measurement circuitry	375/340	379/351; 714/715; 714/761	Miller; Hubert A.

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94	US 4438511 A	19840320	16	Packetized ensemble modem	370/204	370/201; 370/207; 370/225; 370/252; 370/295; 370/389; 370/517; 370/912	Baran; Paul
95	US 3706929 A	19721219	22	COMBINED MODEM AND VOCODER PIPELINE PROCESSOR	375/216	324/76.1 2; 324/76.4 7; 324/76.5 5	Robinson; John L. et al.

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1	US 20040096008 A1	20040520	13	Multi-tap frequency domain equalization with decision feedback and trellis decoding	375/265	375/350	Angel, Guillermo Del et al.
2	US 20030112758 A1	20030619	57	Methods and systems for managing variable delays in packet transmission	370/235	370/229	Pang, Jon Laurent et al.
3	US 6785349 B1	20040831	15	Correlation based method of determining frame boundaries of data frames that are periodically extended	375/343	375/260; 375/354; 455/59	Rosenlof; John R. et al.
4	US 6741185 B2	20040525	22	Digital signal receiver for measurement while drilling system having noise cancellation	340/853.2	175/40; 175/48; 340/854.6; 367/83; 375/232; 375/346; 375/347; 375/350	Shi; Pengyu et al.
5	US 6735255 B1	20040511	20	Correlation based method of determining frame boundaries of data frames that are periodically extended	375/260	370/506; 370/510; 375/343; 375/360	Smart; Kevin J. et al.
6	US 6608864 B1	20030819	10	Method and apparatus for fault recovery in a decision feedback equalizer	375/233	375/350	Strait; Jeffrey C.
7	US 6546056 B1	20030408	15	Timing recovery in a multi-tone modem	375/260	375/364	Rosenlof; John R.
8	US 6452981 B1	20020917	50	Spatio-temporal processing for interference handling	375/299	375/296; 375/347; 375/349	Raleigh; Gregory G. et al.



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9	US 6377631 B1	20020423	48	Transmitter incorporating spatio-temporal processing	375/299	375/296	Raleigh; Gregory G.
10	US 6266367 B1	20010724	10	Combined echo canceller and time domain equalizer	375/229	370/286	Strait; Jeffrey C.
11	US 6208297 B1	20010327	41	Methods and apparatus to position a mobile receiver using downlink signals, part I	342/450	375/350; 455/456.6	Fattouche; Michel et al.
12	US 6144711 A	20001107	49	Spatio-temporal processing for communication	375/347	375/346; 375/349	Raleigh; Gregory G. et al.
13	US 6118805 A	20000912	28	Method and apparatus for performing frequency hopping adaptation	375/132	370/208; 375/134	Bergstrom; Chad Scott et al.
14	US 6055268 A	20000425	75	Multimode digital modem	375/229	375/231	Timm; William C. et al.
15	US 6044107 A	20000328	76	Method for interoperability of a T1E1.4 compliant ADSL modem and a simpler modem	375/222		Gatherer; Alan et al.
16	US 6038251 A	20000314	75	Direct equalization method	375/222	375/229; 375/231	Chen; Walter Y.
17	US 6035000 A	20000307	18	Mitigating radio frequency interference in multi-carrier transmission systems	375/296	370/525; 375/346; 455/296	Bingham; John A. C.
18	US 6021158 A	20000201	78	Hybrid wireless wire-line network integration and management	375/211	375/220	Schurr; Paul E. et al.
19	US 6002722 A	19991214	75	Multimode digital modem	375/295	375/222; 375/357	Wu; Song

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20	US 5999563 A	19991207	59	Rate negotiation for variable-rate digital subscriber line signaling	375/222	370/229; 370/484; 370/494; 375/219	Polley; Michael O. et al.
21	US 5987061 A	19991116	73	Modem initialization process for line code and rate selection in DSL data communication	375/222		Chen; Walter Y.
22	US 5317596 A	19940531	15	Method and apparatus for echo cancellation with discrete multitone modulation	375/232	370/286; 379/406.09; 379/406.13	Ho; Minnie et al.